SECTION 07600 - FLASHING & SHEET METAL

PART 1 – GENERAL

1.1 SCOPE

All flashing will be installed as part of the roofing manufacturer's approved roof system. Sheet metal work shall be accomplished to form weathertight construction. Work shall be installed without waves, warps, buckles, fastening stresses or distortion and shall allow for expansion and contraction. Cutting, fitting, drilling, and other operations in connection with sheet metal required to accommodate the work of other trades shall be performed by sheet metal mechanics. Exposed edges shall be hemmed. Bottom edges of exposed vertical surfaces shall be angled to form drips. Flashing at the end of a run shall be formed into a three dimensional configuration to direct water to the outside of the system. Accessories and other items essential to complete the sheet metal installation, though not specifically indicated or specified, shall be provided. Installation of sheet metal items used in conjunction with roofing shall be coordinated with roofing work to permit continuous roofing operations. Factory-fabricated components shall be packed in cartons marked with the manufacturer's name or trademark. Bulk materials from which items are field fabricated shall have manufacturer's name or trademark printed or embossed at frequent intervals to permit easy identification. In general, products that are part of the manufacuturer’s approved roof membrane system are to be supplied and installed in accordance with manufacturer’s installation instructions.

Requirements included - Contractor shall be responsible for all cutting, fitting and patching, required to complete the work or to:

A. Remove and replace defective work.

B. Remove and replace work not conforming to requirements.

1.2 APPLICABLE PUBLICATIONS

The following specifications and standards of the issues currently in force form a part of this section and are applicable as specified herein.

A. Air Movement and Control Association (AMCA)

1. AMCA 500 Test Methods for Louvers, Dampers and Shutters – Latest Edition

B. American Society For Testing And Materials (ASTM)

1. ASTM A 167 Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip – Latest Edition
2. ASTM B 209 Aluminum and Aluminum-Alloy Sheet and Plate – Latest Edition
3. ASTM B 221 Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Shapes, and Tubes – Latest Edition
4. ASTM B 370 Copper Sheet and Strip for Building Construction – Latest Edition
5. ASTM B 486 Paste Solder – Latest Edition

6. ASTM B 506 Copper-Clad Stainless Steel Sheet and Strip for Building Construction – Latest Edition
7. ASTM D 543 Resistance of Plastics to Chemical Reagents– Latest Edition
8. ASTM D 751 Coated Fabrics – Latest Edition
9. ASTM D 822 Conducting Tests on Paint and Related Coatings and Materials Using Filtered Open-Flame Carbon-Arc Light and Water Exposure Apparatus – Latest Edition
10. ASTM D 1784 Rigid Poly Vinyl Chloride (PVC) Compounds and Chlorinated Poly Vinyl Chloride (CPVC) Compounds – Latest Edition
11. ASTM E 96 Water Vapor Transmission of Materials – Latest Edition

C. Sheet Metal and Air Conditioning Contractors National Association (SMACNA)

1. SMACNA-02 Architectural Sheet Metal Manual – Latest Edition

1.3 SUBMITTALS

Submittals required include, but are not necessarily limited to, the following:

1. Sheet Metal Drawings - Drawings showing weights, gauges, or thickness of sheet metal; type of material; joining, expansion-joint spacing, and fabrication details; and installation procedures. Materials shall not be delivered to the site until after the approved detail drawings have been returned to the Contractor.

PART 2 – MATERIAL

Materials shall conform to the requirements of the roof manufacturer's approved membrane flashing system.

2.1 ALUMINUM EXTRUSIONS

ASTM B 221, Alloy 6063, Temper T5.

2.2 FASTENERS

Fasteners shall be the best type for the application.

2.3 PLASTIC HARDSETTING SEALANT

As recommended by aluminum manufacturer.

2.4 POLYVINYL CHLORIDE (PVC) REGLETS

ASTM D 1784

2.5 SHEET METAL

As recommended by roof manufacturer.

2.6 SOLDER

ASTM B 486, Alloy 50B, for use with copper and Alloy 60B for use with stainless steel

PART 3 – EXECUTION

3.1 PROTECTION OF ALUMINUM

Aluminum shall not be used where it will be in contact with copper or where it will contact water which flows over copper surfaces. Aluminum that will be in contact with wet or pressure-treated wood, mortar, concrete, masonry, or ferrous metals shall be protected against galvanic or corrosive action by one of the following methods:

A. Paint: Aluminum surfaces to be protected shall be solvent cleaned and given a coat of zinc-molybdate primer and one coat of aluminum paint.

B. Nonabsorptive Tape or Gasket: Nonabsorptive tape or gasket shall be placed between the adjoining surfaces and shall be cemented to the aluminum surface using a cement compatible with aluminum.

3.2 SOLDERING, RIVETING, SEAMING, AND SEALING

A. Soldering: Soldering shall apply to copper, copper clad stainless steel, and stainless steel items. Edges of sheet metals, except lead coated material shall be pretinned before soldering is begun. Soldering shall be done slowly with well heated soldering irons so as to thoroughly heat the seams and completely sweat the solder through the full width of the seam. Edges of lead coated material to be soldered shall be scraped or wire-brushed to produce a bright surface and seams shall have a liberal amount of flux brushed in before soldering is begun. Edges of stainless steel to be pretinned shall be treated with soldering acid flux. Soldering shall follow immediately after application of the flux. Upon completion of soldering, the acid flux residue shall be thoroughly cleaned from the sheet metal with a solution of washing soda in water and rinsed with clean water.

B. Riveting and Sealing: Joints in aluminum sheets 0.040 inch or less in thickness shall be made mechanically and sealed with the sealant specified.

C. Seams: Flat-lock and soldered-lap seams shall finish not less than 1-inch wide. Unsoldered plain-lap seams shall lap not less than 3 inches unless otherwise specified. Flat seams shall be made in the direction of the flow.

3.3 CLEATS

A continuous cleat shall be provided where indicated or specified to secure loose edges of the sheet metalwork. Butt joints shall be spaced approximately 1/8-inch apart. The cleat shall be fastened to the supporting construction with nails evenly spaced not over 12 inches on centers, unless otherwise noted. Where the fastening is to be made to concrete or masonry, screws shall be used and shall be driven in expansion shields set in concrete or masonry. The cleat for fascia anchorage shall be installed to extend below the supporting construction to form a drip and to allow the flashing to be hooked over the lower edge at least 3/4 inch. The cleat shall be of

sufficient width to provide adequate bearing area to insure a rigid installation. Where horizontal nailer is vented for insulation and the cleat is placed over masonry or concrete, the cleat shall be installed over 1/16-inch thick metal washers placed at screws. Washers shall be of metal that is electrolytically compatible with the continuous cleat.

3.4 EXPANSION JOINTS

Expansion joints shall be provided at 40-foot intervals for copper and stainless steel and at 32-foot intervals for aluminum, except that where the distance between the last expansion joint and the end of the continuous run is more than half the required interval spacing an additional joint shall be provided. Joints shall be evenly spaced.

3.5 FLASHINGS

Flashings shall be installed at intersections of roof with vertical surfaces and at projections through roof, except that flashing for heating and plumbing, including piping, roof, and floor drains, and for electrical conduit projections through roof or walls is covered in appropriate sections for such work.

A. Base Flashing

Metal base flashing shall be installed at locations indicated and shall be coordinated with roofing work.

3.6 REGLETS

Reglets shall be a factory fabricated product of proven design, complete with fittings and special shapes as may be required. Open-type reglets shall be filled with fiberboard or other suitable separator to prevent crushing of the slot during installation. Reglets shall be located not less than 8 inches nor more than 16 inches above roofing not having cant strips or shall be located not less than 5 inches nor more than 13 inches above cant strip. Reglet plugs shall be spaced not over 12 inches on centers and reglet grooves shall be filled with sealant. Friction or slot-type reglets shall have metal flashings inserted the full depth of slot and shall be lightly punched every 12 inches to crimp the reglet and cap flashing together.

PART 4 – QUALITY ASSURANCE

4.1 DELIVERY, STORAGE, AND HANDLING

Materials shall be adequately packaged and protected during shipment and shall be inspected for damage, dampness, and wet-storage stains upon delivery to the jobsite. Materials shall be clearly labeled as to type and manufacturer. Sheet metal items shall be carefully handled to avoid damage. Materials shall be stored in dry, weathertight, ventilated areas until immediately before installation.

4.2 CONTRACTOR QUALITY CONTROL

The Contractor shall establish and maintain a quality control procedure for sheet metal used in conjunction with roofing to assure compliance of the installed sheet metalwork with the contract requirements. Any work found not to be in compliance with the contract shall be promptly removed and replaced or corrected in an approved manner

* * * END OF SECTION * * *